
Table of Contents

Certified Concrete Technician Program Instructors
 Certified Concrete Technician Training Course Agenda
 Certified Concrete Technician Procedures and Policies Manual

Chapter One -- Introduction

Symbols.....	1-2
Rounding.....	1-3
Volumetrics.....	1-5
Rate of Evaporation.....	1-5

Chapter Two -- Materials

Aggregates.....	2-1
Requirements	
Certified Aggregate Producer Program (CAPP)	
Fine Aggregate Gradation	
Fineness Modulus	
Coarse Aggregate Gradation	
Mixture Gradation	
Particle Shape and Surface Texture	
Specific Gravity	
Absorption and Surface Moisture	
Portland Cements.....	2-8
Requirements	
Portland Cement Types	
Admixtures.....	2-10
Mineral Admixtures	
Chemical Admixtures	

Chapter Three -- Mix Design and Proportioning

Mix Design.....	3-1
Mixing Proportioning.....	3-2
Instructions for Page 1 of Worksheets	
Linear Equation of Unit Weight vs. Air Content.....	3-5
Instructions for Page 2 of Worksheets	
Threshold For Maximum Allowable Water/Cementitious Ratio.....	3-10
Instructions for Page 3 of Worksheets	
Department Concurrence of Mix Design.....	3-13

Chapter Four -- Trial Batch Demonstration

Purpose.....	4-1
Preparation.....	4-1
Procedure.....	4-2
Aggregate Properties	
Concrete Batching and Mixing	
Concrete Testing	

Chapter Five -- Field Operations

Concrete Plants.....	5-1
Ready-Mix Plants	
Central Mix Plants	
Batching.....	5-4
Aggregates	
Cement	
Fly Ash or GGBFS	
Water	
Admixtures	
Mixing and Transporting.....	5-6
Stationery Mixers	
Truck Mixers	
Pumping.....	5-8
Requirements	
Causes of Air Increase	
Causes of Air Loss	
Controlling Air Content	
Curing.....	5-13
Requirements	
Evaporation Rate	

Chapter Six -- Quality Assurance

Sublots and Lots.....	6-1
Random Sampling.....	6-2
Random Numbers	
Sample Location	
Sampling Procedure	
Acceptance Testing.....	6-12
Air Content and Unit Weight	
Compressive Strength	
Slump	
Pay Factors.....	6-13
Quality Assurance Adjustment.....	6-14
Appeals.....	6-16
Air Content Appeal for Sublot	
Compressive Strength Appeal for Sublot	
Failed Materials.....	6-17

Chapter Seven -- Quality Control

Contractor Personnel.....	7-1
QCP Manager	
QCP Site Manager	
Certified Concrete Technician	
Facilities and Testing Equipment.....	7-2
Process Control of Aggregates.....	7-3
Gradation	
Water Absorption	
Bulk Specific Gravity (SSD)	
Process Control of Concrete.....	7-3
Slump	
Air Content and Unit Weight	
Water/Cementitious Ratio	
Compressive Strength	
Process Control of Reinforcing Steel.....	7-4
Response to Test Results.....	7-5
Slump	
Water Absorption	
Bulk Specific Gravity (SSD)	
Unit Weight	
Water/Cementitious Ratio	
Air Content	
Documentation.....	7-6
Quality Control Plan.....	7-7
QCP Approval	
QCP Addenda	

Appendix A

Indiana Test Methods

207	Sampling Stockpiled Aggregates
401	High Pressure Air Content of Hardened Portland Cement Concrete
403	Water - Cementitious Ratio
405	Portland Cement Concrete Plant Inspection
802	Random Sampling
803	Contractor Quality Control Plans

Appendix B

AASHTO Test Methods

T 11	Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
T 19	Unit Weight and Voids in Aggregate
T 22	Compressive Strength of Cylindrical Concrete Specimens
T 23	Making and Curing Concrete Test Specimens in the Field
T 24	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
T 27	Sieve Analysis of Fine and Coarse Aggregate
T 84	Specific Gravity and Absorption of Fine Aggregate
T 85	Specific Gravity and Absorption of Coarse Aggregate
T 97	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
T 119	Slump of Hydraulic Cement Concrete
T 121	Mass per Cubic Meter (Cubic Foot), Yield, and Air Content (Gravimetric) of Concrete
T 141	Sampling Freshly Mixed Concrete
T 152	Air Content of Freshly Mixed Concrete by the Pressure Method
T 196	Air Content of Freshly Mixed Concrete by the Volumetric Method
T 231	Capping Cylindrical Concrete Specimens
T 248	Reducing Samples of Aggregate to Testing Size
T 255	Total Moisture Content by Aggregate by Drying
T 277	Electrical Indication of Concrete's Ability to Resist Chloride ion Penetration

Appendix C

Testing and Calibration Procedures

Testing

AASHTO T 22	Compressive Strength of Cylindrical Concrete Specimens
AASHTO T 23	Making and Curing Concrete Test Specimens in the Field
AASHTO T 97	Flexural Strength of Concrete
AASHTO T 119	Slump of Hydraulic Cement Concrete
AASHTO T 121	Unit Mass (Weight) of Concrete
AASHTO T152	Air Content of Freshly Mixed Concrete by the Pressure Method (Type B)
AASHTO T 196	Air Content of Freshly Mixed Concrete by the Volumetric Method

Calibration

ITM 902	Verifying Sieves
ITM 909	Verifying Thermometers
ITM 910	Verifying Balances
ITM 911	Verifying Slump Cones
AASHTO T 121	Verifying and Calibrating Unit Weight Measures
AASHTO T 152 & T 121	Calibrating Type B Pressure Air Meters for Air Content & Unit Weight
AASHTO T 196	Calibrating Volumetric Air Meters

Appendix D

Forms

Quality Control Plan Checklist

English

Mix Design & Proportioning QC/QA Superstructure Concrete

CMD Linear Equation

Threshold Linear Equation

Trial Batch Demonstration

Superstructure Concrete Analysis for Quality Assurance

Random Sampling Locations for QC/QA Superstructure Concrete

Metric

Mix Design & Proportioning QC/QA Superstructure Concrete

CMD Linear Equation

Threshold Linear Equation

Trial Batch Demonstration

Superstructure Concrete Analysis for Quality Assurance

Random Sampling Locations for QC/QA Superstructure Concrete